## **CONTENTS OF VOLUME 29**

### APRIL 1976-VOL. 29, NO. 1

#### **TECHNICAL PAPERS**

#### REACTORS

- Nuclear Design of the Blanket/Shield System for a Tokamak Experimental Power Reactor / Mohamed A. Abdou
- 37 Development of Improved Data Analysis Methods for Reactivity Measurements in Large Thermal-Power Reactors / K. L. Ferguson, C. G. Poncelet, A. J. Impink, Jr.

#### REACTOR SITING

53 Effect of Fallout on Measurement of Iodine-131 Around Nuclear Reactors / C. J. Paperiello, J. M. Matuszek

#### **FUEL CYCLES**

57 Livermore Plutonium Array Program: Experiments and Calculations / O. C. Kolar, H. F. Finn, N. L. Pruvost

#### **FUELS**

73 Effects Due to Fission Gas During Unprotected Overpower Transients in a Liquid-Metal Fast Breeder Reactor / H. G. Bogensberger, C. Ronchi

#### **MATERIALS**

- 86 High Strain Crack Growth in Zircaloy-2 Welds / H. D. Solomon
- 94 Stainless-Steel Weight Loss in Nitrogen-Contaminated Liquid Lithium / R. J. Schlager, R. A. Patterson, D. L. Olson, W. L. Bradley
- 98 Calculated Composition Changes of Some Refractory Metals in a Fusion Reactor Environment / D. S. Kopecki, K. M. Ralls, E. Linn Draper, Jr.

#### ISOTOPES SEPARATION

Two-Up, One-Down Ideal Cascades for Isotope Separation / Donald R. Olander

(Continued)

## APRIL 1976-VOL. 29, NO. 1

#### (Continued)

#### **INSTRUMENTS**

113 In-Pile Gamma-Ray Spectrometry to Follow OSIRIS Irradiations / G. Farny, M. Destot, D. Texier, J. L. Faugere, M. Mouchnino

#### RADIATION

124 Welding Plastics by the Neutron Capture Process / J. N. Anno

#### **TECHNIQUES**

127 Acoustic Emission Analysis of Stress Corrosion Cracking in Type 304 Stainless Steels / Jaishanker Shrinivasan Brihmadesam, N. J. McCormick

#### **DEPARTMENTS**

1 Authors

136 Book Review

## MAY 1976-VOL. 29, NO. 2

PLAN'	T WA	TER	CHEN	ISTRY
			OI I LIV	

145 Preface: Plant Water Chemistry / Paul Cohen

#### **TECHNICAL PAPERS**

- 146 Recent Concerns with Reactor Coolant Chemistry Technology in Pressurized Water Reactors / J. H. Hicks
- 153 Chemistry Experience in the Primary Heat Transport Circuits of Kraftwerk Union Pressurized Water Reactors / R. Riess
- 160 Ammonia Suppresses Oxygen Production in Boiling Water Reactors / J. E. LeSurf, G. M. Allison
- 166 Measurement of Fuel Element Crud Deposits in Pressurized Water Reactors / Yale Solomon, Josef Roesmer

#### **REACTORS**

174 The Application of Advanced Gas Cooled Reactor Materials / L. Henderson, R. Stead

#### **FUEL CYCLES**

191 A Man-Machine Communication System for Boiling Water Reactor Core Management Planning / Osamu Yokomizo, Hiroshi Motoda, Takashi Kiguchi, Renzo Takeda

#### **FUELS**

200 Gas Tag Identification of Failed Reactor Assemblies—III. Tag Ratios for the Fast Flux Test Facility Cores I Through IV / N. J. McCormick, R. E. Schenter, R. P. Omberg

#### **MATERIALS**

- 209 Liquid Lithium Penetration of Stressed Armco Iron / W. Jordan, W. L. Bradley, D. L. Olson
- 215 Reaction of Europia with Austenitic Stainless Steel / Paul C. S. Wu

(Continued)

## MAY 1976-VOL. 29, NO. 2

#### (Continued)

R	Λ	D	10	71	C	0	T	0	D	E	C
0.8	~		13	"	U	V		v		-	v

222 Radioisotope Battery Using Schottky Barrier Devices / F. K. Manasse, A. N. Tse

#### **ANALYSIS**

239 Estimation of Irradiation History of a Spent Fuel by Gamma-Ray Spectroscopy / Kanji Tasaka

#### **DEPARTMENTS**

139 Authors

249 Book Reviews

251 Letters To The Editor

### JUNE 1976-VOL. 29, NO. 3

#### **FUSION REACTOR MATERIALS**

263 Preface: Fusion Reactor Materials / Robert J. Teitel

#### TECHNICAL PAPERS

- 264 Effect of Neutron Irradiation on the Critical Current of Nb<sub>3</sub>Sn at High Magnetic Fields / C. L. Snead, Jr., Don M. Parkin
- 268 The Effect of Aluminum Additions on Nb<sub>3</sub>Sn Produced in the Solid State / David Dew-Hughes, Thomas S. Luhman, Masaki Suenaga
- 274 Ceramic Materials for Fusion / L. H. Rovner, G. R. Hopkins
- 303 Helium Blistering of Ceramic Coatings on Hastelloy X and Nb-1% Zr / M. Kaminsky, S. K. Das, R. Ekern
- 309 Vaporization Thermodynamics and Molecular Sputtering of Binary Targets / Dieter M. Gruen, Patricia A. Finn, Dennis L. Page
- 318 Sputtering Measurements on Controlled Thermonuclear Reactor Materials Using Auger Electron Spectroscopy / Joe N. Smith, Jr., C. H. Meyer, Jr., J. K. Layton
- 322 Low-Energy Proton Implantation of Stainless Steel / K. L. Wilson, G. J. Thomas, W. Bauer
- 327 An Intense Li(d,n) Neutron Radiation Test Facility for Controlled Thermonuclear Reactor Materials Testing / P. Grand, K. Batchelor, J. P. Blewett, A. Goland, D. Gurinsky, J. Kukkonen, C. L. Snead, Jr.
- 337 Controlled Thermonuclear Reactor Neutron Spectra Simulation at the LAMPF Radiation Effects Facility / M. L. Simmons, Donald J. Dudziak
- 346 Neutron-Energy-Dependent Defect Production Cross Sections for Fission and Fusion Applications / G. R. Odette, D. R. Doiron
- 369 Helium Charging of Metals by Tritium Decay / J. F. Remark, A. B. Johnson, Jr., Harry Farrar, IV, D. G. Atteridge
- 378 Effects of Helium on Void Swelling in Vanadium / J. L. Brimhall, E. P. Simonen

(Continued)

### JUNE 1976-VOL. 29, NO. 3

#### (Continued)

384 The Calculated Performance of Various Structural Materials in Fusion-Reactor Blankets / M. L. Williams, R. T. Santoro, T. A. Gabriel

#### REACTORS

- 392 A High-Gain Fusion-Fission Reactor for Producing Uranium-233 / Shang-Fon Su, Gene L. Woodruff, N. J. McCormick
- **406** Effects of Helium Mixing and Heat Transfer on Containment Design Pressure in a High-Temperature Gas-Cooled Reactor / John R. McCarty, Michael J. Kolar
- 415 Considerations in the Design of Electron-Beam-Induced Fusion Reactor Systems / Samuel G. Varnado, Gary A. Carlson

#### **FUELS**

428 Determination of the Specific Heat Transfer Between Fuel and Canning from Reactivity Measurements at the Nuclear Power Plant KCB / H. Raum, G. Bronner, W. D. Krebs

#### **INSTRUMENTS**

433 Development of Direct-Electrical-Heating Apparatus to Study the Response of Nuclear Fuels to Applied Transients / B. J. Wrona, E. Johanson

#### **DEPARTMENTS**

- 255 Authors
- 443 Volume 29 Indexes
- iii Volume 29 Contents